

tion, radiating lamellæ forty-eight, thin, twenty-four of which reach the centre, while the intervening ones are nearly marginal, not reaching half-way to the inner zone; interlamellar vesicular plates very numerous and delicate in the outer zone, apparently absent in the inner zone.

This species has some affinity with the *N. minus* (M'Coy), but is constantly distinguished by the open, simple, subseptate character of the inner zone in the vertical section, the extreme comparative shortness of the alternate lamellæ in the transverse section, and the peculiar character of the broad, simple, cup-like plates of the inner zone in the rough transverse fracture.

Very common in the carboniferous limestone of Tullyard, Armagh, Ireland.

(Col. University of Cambridge.)

[To be continued.]

II.—*Note on the Colour of a Freshwater Loch.* By GEORGE DICKIE, M.D., Lecturer on Zoology and Botany in the University and King's College of Aberdeen\*.

VARIOUS vegetable productions have on different occasions been recorded as having appeared in such profusion that they communicated a colour of greater or less intensity to bodies of fresh water in which they naturally live. The plants in question belong to the *Oscillatorieæ* and *Nostochineæ*; among the former, *Oscillatoria ærugescens* has been recorded by Dr. Drummond (Ann. Nat. Hist. vol. i. 1st Series) as giving a tinge to the water of Glaslough in Ireland†; I have found the same species at Aberdeen, and particularly abundant in a small and shallow artificial lake, in sheets of great extent at the bottom. I have not observed it, as stated by Dr. Drummond, "broken into innumerable fragments, and suspended like cloudy flocculi in the water;" it sometimes however becomes detached from the bottom and forms large masses on the surface. The following plants belonging to the *Nostochineæ* have been described by Mr. Thompson of Belfast as producing the same effect: the *Anabaina spiralis* (*Spirillum Thompsoni*, Hass.) was observed to colour Ballydrain Lake in the county of Antrim; *Anabaina Flos-aquæ*, Bory, he saw "tinging with its delicate green hue the margin of the smallest of the Lochs Maben in Dumfries-shire," and *Aphanizomenon incurvum*, Morren, was "observed on the surface of sheltered creeks in Ballydrain Lake."

\* Read before the Botanical Society of Edinburgh, Nov. 9, 1848.

† *Oscillatoria rubescens* has been observed to communicate a red tint to Lake Morat in Switzerland.

Professor Allman has more recently described (Annals of Natural History, vol. xi.) a new plant, *Trichormus incurvus*, All., as "colouring the water of the Grand Canal Docks near Dublin, a pea-green."

The present brief notice is for the purpose of recording the occurrence of a species of *Rivularia* near Aberdeen, under circumstances similar to those of the plants alluded to and producing a like effect. For some years back excursions have been made with the students of my botanical class to a loch on the estate of Parkhill, about four miles north-west from Aberdeen. The sheet of water in question is about a quarter of a mile in its greatest length; on almost all sides it is surrounded by extensive deposits of peat, with the soluble matter of which a great proportion of the water passing into the loch is impregnated. The loch abounds in *Scirpus lacustris*, *Arundo Phragmites*, *Nuphar lutea*, *Nymphæa alba*, and various species of *Potamogeton*, &c. The locality was generally visited in the beginning of July; nothing peculiar had ever been observed till the summer of 1846, when my attention was arrested by a peculiar appearance of the water, especially near the edge, but extending also some distance into the loch. Numerous minute bodies with a spherical outline, and varying in size from  $\frac{1}{24}$ th to  $\frac{1}{12}$ th of an inch in diameter, were seen floating at different depths, and giving the water a peculiar appearance. In some places they were very densely congregated, especially in small creeks at the edge of the loch. A quantity was collected by filtration through a piece of cloth, and on examination by the microscope, there could be no doubt that the production was of a vegetable nature and a species of *Rivularia*; one however unknown to me, and not agreeing with the description of any species described in works to which I had access. Specimens were sent to the Rev. M. J. Berkeley; he informed me that the plant belonged to the genus mentioned, and stated it to be *Rivularia echinulata*, E. B. Along with it, but in very small quantity, I also found another plant, the *Anabaina Flos-aquæ*, Bory.

In the first week of July 1847, the same species were observed similarly associated, but the *Anabaina* was now more plentiful, without however any apparent corresponding diminution in the quantity of the *Rivularia*.

In July last (1848) it was observed that the *Rivularia* was as rare as the *Anabaina* had been in 1846; to the latter consequently the water of the loch now owed its colour, which was a very dull green; the colour however becomes brighter when the plant is dried. In neither of the seasons mentioned was it in my power to make any observations on the colour of the loch earlier or later than the date above-mentioned, consequently nothing can

be added respecting the comparative development and progress of the two plants at other seasons.

Two other smaller lochs in the same vicinity were not observed to present any appearance of the productions in question.

In connection with the subject of this short notice, it may be stated, that during a visit to Ben Muich Dhu in 1846, the appearance presented by a patch of snow at 3500 feet of elevation, attracted attention. It seemed as if sprinkled over with soot; a quantity of the black matter was collected, and found to consist in part of the following *Diatomaceæ*: *Eunotia triodon*, *Navicula viridula*?, *N. curvula*?, and *Meridion circulare*, and along with them *Protococcus nivalis* in very small proportion; the remainder consisted of inorganic matter, the nature of which was not ascertained.

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III.—*Stirpes Cryptogamæ Sarnienses; or Contributions towards the Cryptogamic Flora of Guernsey.* By the Rev. T. SALWEY, Oswestry\*.

So much has been done by Mr. Babington in his 'Primitiæ Floræ Sarnicæ' for the illustration of the phænogamous flora of the Channel Islands, that perhaps a brief notice of the cryptogamic botany of one of the islands of this group may be acceptable to some of the Members of the Botanical Society. Guernsey does not appear to be very prolific in cryptogamic plants—a variety of causes tend to produce this result—the open nature of the country; the great paucity of wood; the general dryness of the soil from the circumstance of all the rocks being of the primitive formation; and the very great proportion of the land being under the cultivation either of the spade or plough; all these circumstances are inimical to the growth and perfect development of cryptogamic plants. There are no woods in the island, and the soil even of the orchards is in general under the culture of the spade. It is at once evident therefore that the great variety of Agarics, Boleti, and the innumerable other Fungi which are found so abundantly in the extensive woods and rich pastures of England, have no corresponding habitats here in which to grow. The same reason limits the number of Musci, Hepaticæ and Jungermanniæ, whilst from the few brooks and ponds which are found in the island it is equally hopeless to expect a great number of freshwater Algæ. Even the lichens do not exhibit that luxuriance of growth which we find in the deep woods and glens of the Cambrian mountains. Thus the common *Parmelia saxatilis* is seldom found here in fruit, and the few

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